

Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



Scaled data based on original data using  
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P910422

Luminaire Tested: DFN2DIP-4P3F0-050D030US850-FLLFLL

Issue Date: 11/21/2024

**Test Information**

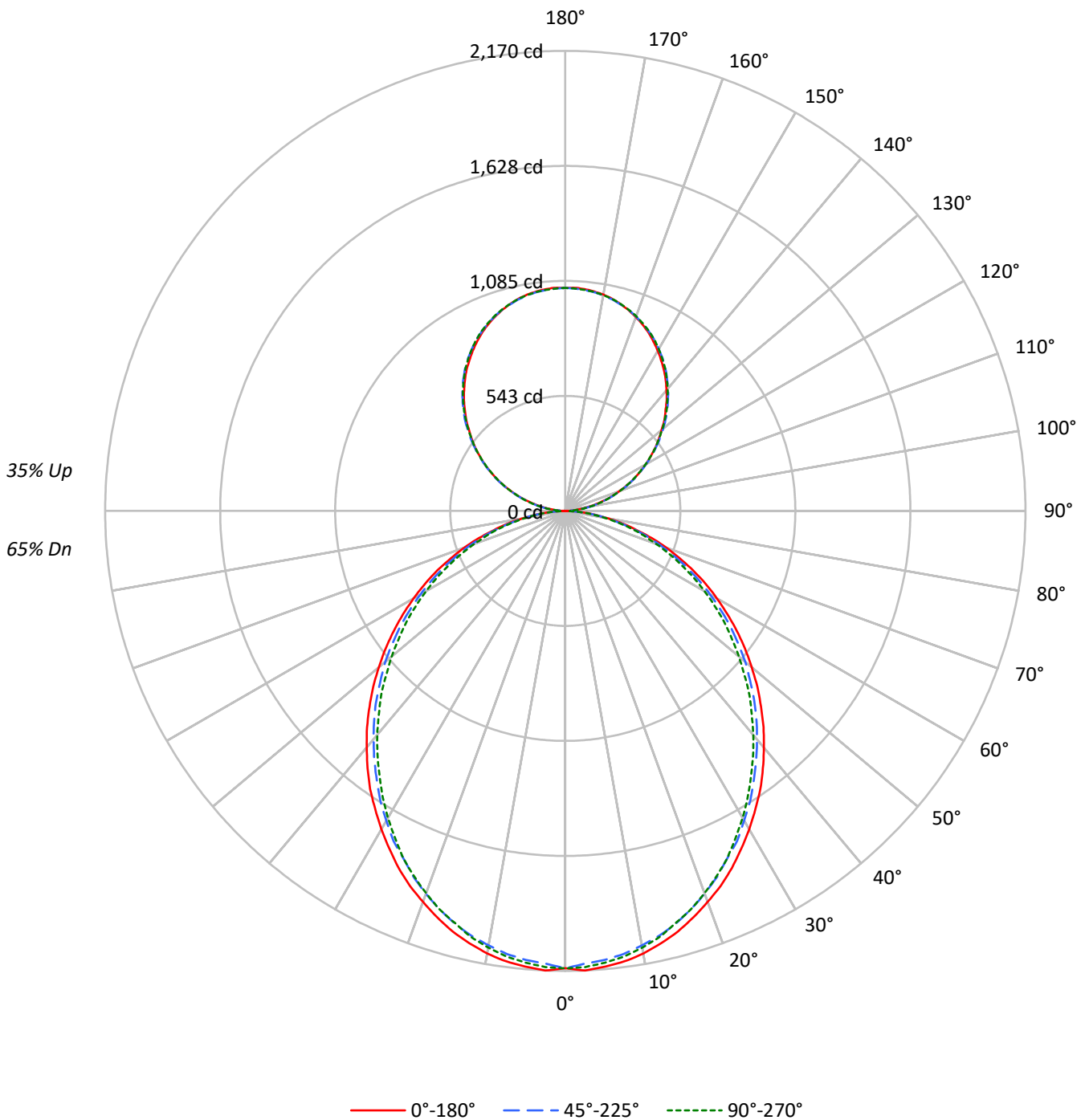
Test Method: LM-79-2019  
Report Number: P910422  
REPORT IS A COMBINATION OF REPORTS P899045 AND P895917  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-4P3F0-050D030US850-FLLFLL  
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 8433.9 lumens  
Efficiency: N/A  
Efficacy: 118.6 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')  
CIE Type: Semi-Direct  
  
Input Watts (W): 71.1  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9971  
Total Harmonic Distortion (THDi): 0.049  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P910422  
CATALOG NUMBER: DFN2DIP-4P3F0-050D030US850-FLLFLL

### Luminous Intensity Polar Plot





TEST NUMBER: P910422

CATALOG NUMBER: DFN2DIP-4P3F0-050D030US850-FLLFLL

**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20				20				20				20				20				
RC	80				70				50				30				10			0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	111	111	111	111	104	104	104	104	92	92	92	80	80	80	70	70	70	65			
1	101	97	93	89	95	91	88	84	81	78	75	71	69	67	62	60	59	55			
2	92	85	78	73	86	80	74	69	71	66	63	62	59	56	55	52	50	46			
3	84	74	67	61	79	70	63	58	62	57	53	55	51	47	48	45	42	39			
4	77	66	58	52	72	62	55	49	55	50	45	49	44	41	43	40	37	33			
5	71	59	50	44	66	56	48	42	50	44	39	44	39	35	39	35	32	29			
6	65	53	45	39	61	50	43	37	45	39	34	40	35	31	35	31	28	26			
7	60	48	40	34	57	45	38	33	41	35	30	36	31	28	32	28	25	23			
8	56	44	36	30	53	41	34	29	37	31	27	33	28	25	30	26	22	20			
9	52	40	32	27	49	38	31	26	34	28	24	31	26	22	27	23	20	18			
10	49	37	29	24	46	35	28	23	32	26	22	28	24	20	25	21	19	17			

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	2459	2459	2459
5°	2461	2423	2440
10°	2440	2389	2406
15°	2402	2348	2354
20°	2352	2292	2300
25°	2302	2225	2238
30°	2240	2162	2160
35°	2181	2089	2077
40°	2109	2015	1998
45°	2037	1940	1917
50°	1958	1862	1823
55°	1875	1771	1737
60°	1782	1664	1638
65°	1679	1553	1522
70°	1549	1417	1397
75°	1368	1255	1279
80°	1150	1047	1058
85°	809	694	692

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2037 cd/sqm



TEST NUMBER: P910422

CATALOG NUMBER: DFN2DIP-4P3F0-050D030US850-FLLFLL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	203.1	2.4
10°-20°	571.4	6.8
20°-30°	839.7	10.0
30°-40°	975.2	11.6
40°-50°	974.0	11.5
50°-60°	849.3	10.1
60°-70°	627.9	7.4
70°-80°	355.2	4.2
80°-90°	96.8	1.1
90°-100°	65.1	0.8
100°-110°	206.9	2.5
110°-120°	354.0	4.2
120°-130°	465.6	5.5
130°-140°	522.6	6.2
140°-150°	512.5	6.1
150°-160°	429.9	5.1
160°-170°	285.1	3.4
170°-180°	99.7	1.2
0°-30°	1614.1	19.1
0°-40°	2589.4	30.7
0°-60°	4412.7	52.3
0°-90°	5492.6	65.1
90°-120°	626.0	7.4
90°-150°	2126.7	25.2
90°-180°	2941.0	34.9
0°-180°	8433.9	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2158	2158	2158	2158	2158	
5°	2158	2150	2126	2143	2139	205
15°	2054	2042	2014	2023	2012	578
25°	1859	1842	1807	1811	1807	855
35°	1604	1583	1550	1537	1527	1001
45°	1305	1290	1259	1237	1228	1007
55°	988	975	950	925	915	883
65°	666	654	633	614	604	659
75°	348	344	334	322	326	372
85°	85	83	81	75	73	95
90°	1	11	31	29	30	8
95°	46	55	57	57	55	52
105°	191	194	195	197	197	202
115°	355	360	359	358	355	351
125°	517	525	522	519	518	462
135°	668	678	680	679	677	517
145°	812	818	823	824	820	507
155°	928	930	933	938	935	427
165°	1009	1008	1008	1015	1010	285
175°	1050	1048	1046	1052	1047	100
180°	1052	1052	1052	1052	1052	



TEST NUMBER: P910422

CATALOG NUMBER: DFN2DIP-4P3F0-050D030US850-FLLFL

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2157.6	2157.6	2157.6	2157.6	2157.6
2.5°	2170.1	2159.8	2136.9	2157.6	2153.7
5°	2157.6	2149.5	2126.5	2143.0	2139.2
7.5°	2143.0	2130.7	2107.9	2124.6	2120.4
10°	2120.4	2105.9	2081.0	2097.5	2091.4
12.5°	2089.1	2076.8	2052.0	2062.3	2058.1
15°	2053.9	2041.6	2014.5	2022.9	2012.5
17.5°	2010.3	1998.0	1970.9	1981.2	1970.9
20°	1962.6	1950.3	1921.2	1927.3	1919.2
22.5°	1915.0	1896.3	1869.2	1869.2	1865.0
25°	1858.9	1842.4	1807.1	1811.1	1807.1
27.5°	1796.6	1782.1	1755.2	1749.0	1738.7
30°	1734.5	1717.8	1686.8	1680.6	1672.3
32.5°	1668.0	1655.7	1622.5	1609.9	1601.6
35°	1603.7	1583.1	1549.8	1537.3	1527.0
37.5°	1531.1	1512.5	1479.2	1464.7	1454.3
40°	1456.6	1439.8	1406.5	1388.0	1379.7
42.5°	1383.9	1367.2	1334.1	1313.2	1300.9
45°	1305.1	1290.5	1259.3	1236.6	1228.2
47.5°	1228.2	1213.7	1180.5	1157.6	1145.3
50°	1147.3	1136.9	1107.9	1078.8	1068.4
52.5°	1068.4	1053.9	1027.0	1004.2	989.7
55°	987.7	975.1	950.2	925.3	915.0
57.5°	906.6	896.3	869.2	844.4	836.0
60°	825.7	817.6	788.5	765.5	759.4
62.5°	746.9	732.4	711.6	690.9	682.6
65°	666.1	653.5	632.8	614.2	603.7
67.5°	583.1	572.6	554.1	539.5	531.1
70°	506.3	497.9	479.2	464.7	456.6
72.5°	427.5	419.1	408.8	394.2	388.0
75°	348.4	344.5	333.9	321.6	325.8
77.5°	278.0	269.6	265.5	259.3	253.2
80°	207.6	205.4	201.2	195.1	190.9
82.5°	141.1	141.1	139.1	130.8	130.8
85°	84.9	83.0	81.0	74.6	72.6
87.5°	37.4	33.3	29.1	22.8	20.7
90°	1.0	11.4	31.1	29.2	30.2
92.5°	19.6	26.6	27.6	28.5	28.5
95°	46.4	55.2	56.8	56.8	55.2
97.5°	77.1	85.3	88.8	88.8	88.8
100°	112.6	119.9	122.4	122.4	121.5
102.5°	150.0	155.5	158.9	159.9	158.9
105°	191.0	193.5	195.4	197.0	197.0
107.5°	231.6	235.3	235.3	236.0	231.6
110°	270.9	276.0	276.0	276.0	273.5



TEST NUMBER: P910422

CATALOG NUMBER: DFN2DIP-4P3F0-050D030US850-FLLFLL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	313.4	318.8	317.8	315.3	313.4
115°	355.3	360.3	358.8	357.9	355.3
117.5°	396.8	403.8	399.4	396.8	394.2
120°	438.7	445.7	438.7	438.7	435.8
122.5°	476.8	485.6	481.2	478.6	476.8
125°	516.8	524.7	522.1	519.2	518.3
127.5°	555.7	565.6	562.2	558.3	555.7
130°	592.2	603.6	602.1	600.2	596.6
132.5°	633.1	642.0	642.7	638.2	635.7
135°	668.4	678.2	680.1	679.2	676.6
137.5°	707.7	715.6	717.2	716.6	712.8
140°	742.3	750.2	754.7	754.7	751.1
142.5°	777.9	785.7	788.3	789.3	785.7
145°	811.5	817.8	822.9	823.8	820.3
147.5°	841.6	849.5	853.3	854.9	851.4
150°	872.7	878.1	881.5	884.4	881.5
152.5°	900.3	905.6	910.0	913.6	910.0
155°	927.9	930.3	933.2	937.7	934.9
157.5°	951.6	953.5	955.2	961.5	957.1
160°	972.9	974.8	975.8	981.1	977.4
162.5°	992.6	992.6	993.6	999.5	995.1
165°	1009.4	1008.4	1008.4	1014.7	1010.3
167.5°	1024.6	1021.7	1021.7	1028.0	1023.6
170°	1036.0	1033.5	1032.6	1038.9	1033.5
172.5°	1043.9	1041.5	1040.5	1046.8	1041.5
175°	1050.3	1047.8	1045.9	1052.2	1046.8
177.5°	1053.8	1051.2	1049.3	1054.8	1049.3
180°	1052.2	1052.2	1052.2	1052.2	1052.2



TEST NUMBER: P910422  
 CATALOG NUMBER: DFN2DIP-4P3F0-050D030US850-FLLFL

**CIE UGR TABLE:**

Reflectances:											
Ceiling		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
X=2H	Y=2H	11.65	12.67	12.47	13.51	14.54	11.21	12.22	12.02	13.06	14.10
	3H	13.32	14.23	14.15	15.08	16.15	12.83	13.74	13.66	14.59	15.66
	4H	13.91	14.77	14.76	15.63	16.71	13.42	14.28	14.26	15.14	16.21
	6H	14.32	15.11	15.17	15.97	17.06	13.82	14.61	14.67	15.47	16.56
	8H	14.42	15.18	15.29	16.06	17.15	13.92	14.68	14.79	15.56	16.65
	12H	14.48	15.20	15.35	16.07	17.19	13.97	14.69	14.84	15.56	16.68
4H	2H	12.13	12.99	12.98	13.85	14.92	11.77	12.64	12.62	13.49	14.57
	3H	14.00	14.72	14.86	15.61	16.70	13.60	14.32	14.46	15.20	16.29
	4H	14.72	15.38	15.59	16.26	17.38	14.30	14.95	15.17	15.84	16.96
	6H	15.24	15.81	16.13	16.72	17.84	14.81	15.37	15.70	16.28	17.40
	8H	15.39	15.92	16.28	16.82	17.96	14.95	15.48	15.85	16.39	17.52
	12H	15.47	15.95	16.38	16.87	18.01	15.02	15.50	15.93	16.42	17.56
8H	4H	14.93	15.45	15.82	16.36	17.49	14.55	15.08	15.44	15.98	17.12
	6H	15.56	16.00	16.48	16.94	18.07	15.17	15.61	16.09	16.56	17.69
	8H	15.78	16.16	16.70	17.10	18.25	15.38	15.77	16.31	16.71	17.86
	12H	15.91	16.25	16.84	17.18	18.39	15.50	15.84	16.43	16.77	17.98
12H	4H	14.92	15.39	15.83	16.32	17.46	14.55	15.03	15.46	15.95	17.09
	6H	15.59	15.98	16.52	16.91	18.06	15.21	15.60	16.14	16.54	17.69
	8H	15.83	16.17	16.76	17.10	18.31	15.45	15.79	16.38	16.72	17.93